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24 January 1958

MEMORANDUM FOR: [redacted] 25X1

SUBJECT : Request for Extension of Time and Additional Funds for Task J under Contract RD-26 with [redacted] 25X1

1. Description of the Project

This project is for continued research and development leading to a time delay firing device based on the metered flow of a viscous fluid through a variable orifice.

2. Purpose of the Project

The purpose of this project is to develop a rugged, inexpensive time delay firing device producing reliable delays in the range from fifteen minutes to two months over wide temperature extremes. The need for a time delay device having these attributes is apparent from consideration of existing Agency delays. Generally, these are of two types: (1) highly accurate but expensive delays, such as clockworks, (2) cheap but inaccurate chemical timers that are extremely temperature sensitive. The proposed delay has an accuracy approaching that of a clock but is much less expensive to produce and requires less maintenance.

The feasibility of producing reasonably accurate delay times by extruding a high viscosity fluid through a controlled size orifice has been demonstrated under Contract RD-88, Task 3, with [redacted] 25X1 Repeated timing tests have shown that this principle is capable of producing both predictable and reproducible delay times at any given temperature. A firing mechanism has been designed for the delay.

Although the original design was satisfactory for producing delays if the operating temperature were known, during the course of its development it proved unadaptable for means of temperature compensation. Toward the conclusion of research a new design was conceived. Because the task was near expiration, the amount of work which could be alloted to this new design was limited. However, flow vs. temperature calculations and limited experiments indicated that with this design the desired temperature compensation could be achieved.

25X1 [redacted]

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It is the purpose of this extension to continue the necessary development and evaluation to the point where a prototype delay unit can be demonstrated to produce reasonably accurate delay times automatically over the range of temperature from -20°F to +120°F.

3. Recommended Contractor

The contractor for this development is [redacted] 25X1
[redacted]. It is felt that [redacted] is well suited to conduct a 25X1
program such as this, involving as it does substantial theoretical treatment in addition to engineering development.

4. Support Requirements

There are no support requirements. Other [redacted] divisions interested 25X1
in the time delay field will be kept informed of the progress of this project.

5. Total Cost

The total cost for this extension has been estimated at $10,600.00, including the fixed fee, for an additional seven month period of research. This cost is considered reasonable.

In the estimation of the project engineer, this work comes within the scope of the original program initiated with [redacted] in fiscal year 25X1
1957 as Task J under Contract RD-26. Charges should therefore be made against Allotment Number 7-2502-10.

6. Security Information

[redacted] 25X1

7. Project Engineer

The project engineer for this program is [redacted] Room 25X1
210, West Outbuilding, extension [redacted] 25X1

[redacted] 25X1

Chief
[redacted]/Engineering Division 25X1

[redacted] 25X1

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